



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,824	05/15/2006	Christophe Colignon	PSA0313828	7288
29980	7590	04/28/2010	EXAMINER	
NICOLAS E. SECKEL Patent Attorney 1250 Connecticut Avenue, NW Suite 700 WASHINGTON, DC 20036			NGUYEN, TU MINH	
			ART UNIT	PAPER NUMBER
			3748	
			NOTIFICATION DATE	DELIVERY MODE
			04/28/2010	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@seckelip.com

### Office Action Summary

**Application No.**

10/595,824

**Applicant(s)**

COLIGNON, CHRISTOPHE

**Examiner**

TU M. NGUYEN

**Art Unit**

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. An Applicant's Amendments filed on January 22, 2010 has been entered. Claims 1, 9, 17, and 18 have been amended; and claims 19-20 have been added. Overall, claims 1-20 are pending in this application.

#### ***Drawings***

2. The formal drawings filed on May 15, 2006 have been approved for entry.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In the currently amended claims 1 and 9, the amended phrases are new matter, because the phrase "... an outlet of the oxidation catalyst-forming means feeds into an inlet of the depollution means" does not appear to be described in the original specification and drawings in

a way to reasonably explain to one skilled in the art. In fact, the specification as disclosed on lines 11-15 of page 6, indicates that the depollution means and the oxidation catalyst-forming means can be impregnated in a single element, which is similar to the design by Sasaki. There is no where in the specification of the pending application that discloses the depollution means to be a separate identity from the oxidation catalyst-forming means.

In order to expedite the prosecution process of this present application, the examiner assumes that applicants will correct and delete the new matter issues. The examiner will examine the previously presented subject matters accordingly in this Office Action.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**6. Claims 1-4, 6-12, and 14-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Sasaki (U.S. Patent 6,490,857).**

Re claims 1 and 9, as illustrated in Figures 1, 2, 6(B), 7, 21, and 22, Sasaki disclose a system and a method for assisting the regeneration of depollution means (22a) by oxygen combustion of soot,

wherein the depollution means is associated with oxidation catalyst-forming means (oxygen absorbing and active-oxygen releasing agent (61) (see lines 36-59 of column 5)) implementing an OSC function, constituting a supply of oxygen and integrated in an exhaust line (20) of a motor vehicle diesel engine (1), in which the oxidation catalyst-forming means is located upstream of the depollution means (the oxidation catalyst-forming means is coated on an upstream side of a wall (54) which is a trapping means of soot) in the exhaust line and the engine is associated with common rail means (not shown but obviously must have in order to feed fuel to each fuel injector (6)) for feeding its cylinders with fuel,

wherein the system comprising means (41, 42, 44) for analyzing the running conditions (engine load, engine speed, air flow rate) of the vehicle, for comparing (step 300 or 301) them with predetermined threshold values, and for controlling the engine (i) in a first regeneration operating mode by molecular oxygen combustion of soot with a lean mixture when running conditions are above the threshold values (when the engine is operated in the area B3 (step 301 with YES answer), the engine is in a continuous regeneration mode, a normal lean operating condition of the engine is maintained to regenerate the particulate filter (22a) (see Figure 13(B) and lines 3-48 of column 21), and (ii) in a second regeneration operating mode by oxygen combustion of the soot implementing sequences in which engine operation alternates between stages of rich mixture operation and of lean mixture operation when conditions are below the threshold values (when the engine is operated in the area B2 (step 301 with NO answer), a sub fuel injection (Q2) is injected in the expansion or exhaust stroke so that reducing agents (unburned fuel from Q2) are oxidized at the oxidation catalyst-forming means to raise a temperature of the particulate filter (22a), the overall engine air-fuel ratio is made rich at regular

or irregular intervals (see lines 55-58 of column 27)), so that during a rich mode, oxygen is released from the oxidation catalyst-forming means to promote combustion of reducing agents, so as to raise temperature levels at an inlet to the depollution means (22a) (see at least Figures 3 and line 11 of column 6 to line 49 of column 7) .

Re claims 2, 3, 10, and 11, in the system and method of Sasaki, the depollution means comprise a particle filter (22a), wherein the particle filter includes a catalyst (noble metal on lines 36-42 of column 5).

Re claims 4 and 12, in the system and method of Sasaki, the depollution means comprises a NO<sub>x</sub> trap (22b).

Re claims 6 and 14, in the system and method of Sasaki, the depollution means are impregnated with an SCR formulation (noble metal catalyst on lines 36-42 of column 5), performing a function of oxidizing CO/HC.

Re claims 7 and 15, in the system and method of Sasaki, the engine is associated with a turbocharger (14).

Re claims 8 and 16, in the system and method of Sasaki, the running conditions are determined from at least one of the load (load sensor (41)) on the engine and its running speed (speed sensor (42)).

Re claims 17 and 18, in the system and method of Sasaki, the oxidation catalyst-forming means implementing an OSC function constituting a supply of oxygen stores oxygen in the form of at least one of ceria (CeO<sub>2</sub>) and a composite oxide of cerium and zirconium (see lines 50-54 of column 27).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**8. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki as applied to claims 1 and 9, respectively, above, in view of Rao (U.S. Patent 4,655,037).**

The system and method of Sasaki disclose the invention as cited above, however, fail to disclose that the fuel includes an additive that is to be deposited together with the particles with which it is mixed on the depollution means in order to facilitate regeneration thereof.

Rao discloses a carbon ignition temperature depressing agent and a method of regenerating a particle filter utilizing the agent. As indicated on lines 30-42 of column 3 and line 58 of column 3 to line 14 of column 4, Rao teaches that it is conventional in the art to include an additive (metal oxide) in an engine fuel so that the additive is deposited together with the particles with which the additive is mixed on a particle filter in order to facilitate regeneration thereof by reducing an ignition temperature of the particles. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the additive taught by Rao in the system and method of Sasaki, since the use thereof would have been routinely practiced by those with ordinary skill in the art to save fuel or electricity by reducing an ignition temperature of the particles.

**9. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki as applied to claims 1 and 9, respectively, above, in view of design choice.**

In the system and method of Sasaki, in the second regeneration operating mode, the alternating stages of rich mixture operation and of lean mixture operation include at least a first stage of rich mixture operation, followed by a second stage of lean mixture operation, followed by a third stage of rich mixture operation. Sasaki, however, fails to disclose that the rich mixture operation stages have approximately the same duration.

With regard to applicants claim directed to the same duration for the rich mixture operation stages, the specification of such would have been an obvious matter of design choice well within the level of ordinary skill in the art depending on design variables, such as an operating temperature of the depollution means, a desired duration of the regeneration of the depollution means, etc. Moreover, there is nothing in the record which establishes that the specification of such presents a novel or unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

***Response to Arguments***

10. Applicant's arguments with respect to the references applied in the previous Office Action have been fully considered but they are not persuasive.

In response to applicant's argument that Sasaki fails to disclose a second regeneration operating mode with alternating phases of rich and lean mixture operation (page 11 of Applicant's Amendment), the examiner respectfully disagrees.



The depollution means in Sasaki is a particulate filter that traps particulate matter which is oxidized or burned during a regeneration process of the filter. Because of this, an environment of the filter must be at least in an occasional lean of stoichiometric condition to provide the oxygen required for the oxidation of the particulate matter. Sasaki recognizes this requirement and states on lines 46-52 of column 10 that: *"Thus, when the air-fuel ratio is maintained lean, if the air-fuel ratio is changed over from lean to rich once in a while, the oxygen contamination of platinum Pt is cancelled every time and thus the amount of released active-oxygen increases when the air-fuel ratio is lean. Therefore, the oxidization action of the particulates on the particulate filter 22a can be promoted."*

Therefore, Sasaki further disclose that in order to regenerate the filter, an environment of the filter must be in an alternating rich and lean condition, as indicated on lines 55-58 of column 27: *"Therefore, in order to oxidize and remove the particulates, the air-fuel ratio of the surrounding atmosphere of the particulate filter must be made rich at regular intervals or at irregular intervals."*

Thus, Sasaki clearly discloses the claimed limitation in dispute.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Communication***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TMN  
April 25, 2010

/Tu M. Nguyen/  
Tu M. Nguyen  
Primary Examiner  
Art Unit 3748